



# The Arboretum Bulletin



VOL. III. No. 2

SEATTLE, WASHINGTON

FEBRUARY, 1940

## PHOSPHOROUS FERTILIZERS

THE following remarks are excerpts from a summary prepared by Dr. F. F. Weinard of the Department of Horticulture at the University of Illinois, and should serve to acquaint gardeners with certain features of importance when phosphate fertilizers are being considered:

"Phosphorus is no less important to plants than nitrogen, although the effects from its use are usually less evident. There is plenty of evidence that phosphorus is needed for the normal development of root systems, and that it stimulates flowering and early maturity of fruits. The beneficial effects of an abundant supply of available phosphorus on flower production has been noted, especially on roses and carnations.

"Regardless of the form in which phosphorus is applied to the soil, it becomes fixed in relatively insoluble compounds. Since it ordinarily does not move far through the soil, vertically or otherwise, it has been customary to advise that phosphorous fertilizer be mixed thoroughly with the soil at the beginning of the season. It is true that tests of phosphate-treated soils show that this element is retained for long periods in the soil. The test for acid-soluble phosphorus changes very little through the season, in contrast to nitrogen, which is subject to leaching and which often shows great fluctuations over a short period of time. Where phosphate is used liberally there is water-soluble phosphorus left in the soil which does not become fixed. As long as a soil test shows water-soluble phosphorus it is fair to assume that the plants are getting all they can use.

"Superphosphate is from several standpoints the most important phosphate fertilizer. It is, for example, the chief constituent of most mixed fertilizers. In addition to phosphorus, it carries calcium and sulfur. The soluble portion of superphosphate which may become combined with calcium in the soil is still relatively available to plants. One good application of superphosphate at the beginning of the season will insure a supply of available phosphorus for several months, perhaps through the season. We have had some results with roses, however, indicating that it may be preferable to divide the application into several doses through the season.

"Steamed bone meal does not contain soluble phosphorus, and soil tests made following the use of bone meal do not show any

considerable amounts of the element in a water-soluble form. Bone meal costs more than superphosphate. On the other hand, it contains some nitrogen which becomes slowly available, and for this or other reasons there are some growers who prefer to use steamed bone meal. Bone meal has a tendency to reduce soil acidity.

"Ground rock phosphate and finely divided 'colloidal' phosphate are relatively insoluble under all conditions. There is no evidence that such phosphates are as suitable as superphosphate or steamed bone meal. Treble superphosphate consists principally of soluble calcium phosphate, used in high analysis mixed fertilizers, and in nutrient solutions. Ammonium phosphate is a combination fertilizer put to the same uses. The United States government is producing other forms of phosphates which are still in the experimental stage."

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## WEeping SPRUCE OF THE SISKIYOU MOUNTAINS

By WALTER J. EYERDAM

THE weeping spruce, *Picea Breweriana*-S. Wats., is remarkable for its whip-like branches, which are spreading and hang in pendulous strings six feet in length. The tree reaches a height of 120 feet in its native habitat. The leaves are radially spreading and somewhat flat with white bands above and dark green below. The cones are very pretty before maturity, when they eventually break all to pieces. They are three to six inches in length and light orange brown, becoming purplish before maturity. They stand erect on the branches of the spruce.

This tree is a native of the Siskiyou Mountains of Josephine County, Oregon, and Del Norte and Siskiyou Counties of Northwestern California, where they grow in a few isolated patches as rare relics of a past age.

In 1915, while prospecting in the Siskiyou, I visited the type locality at the head of Days Gulch, which is a few miles from the junction of Josephine Creek and Illinois River, about ten miles from Kerby, Josephine County. There were about a dozen trees of this species growing near the old Indian trail on the east side of the rocky ridge near the top. They grow in one of the old rock formations just above the serpentine belt.

At the Arboretum we have started seedlings and hope to have success in growing them. It will be necessary to give them some special attention because the weeping spruce is hard to grow. They need to be planted in crushed rock with red decomposed iron (limonite) soil. They are quite rare in arboreta and gardens but I have seen them growing well in the cultivated forest at Saarbrücken, Germany.

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## A PROMISING ELM

By J. H. HANLEY

IF YOU want something in elms that is strikingly different, try *Ulmus foliacea umbraculifera*. Unfortunately it has been neither widely known nor widely used, although it has been offered by at least one American nurseryman for a number of years. It is remarkably versatile from the standpoint of landscape use, and is thoroughly capable of resisting extreme weather inclemencies. We have seen it endure several successive summers of intense heat and drought in the Middle West without the slightest impairment.

As a landscape subject it has a variety of uses. From hardwood cuttings taken in the fall, young plants can be procured which will make an excellent hedge in three or four years, if planted 12 to 15 inches apart. The leaves are quite small, so that the hedge does not look coarse, and the growth is very heavy and dense as the synonymous specific name (*Ulmus densa*) suggests. Such a planting can be left to grow in a natural form or shearing can be done for the more formal settings.

Though perfectly adaptable for use as a hedge one sees it more frequently grown as a small specimen tree either on its own roots or grafted at various heights to give it a true trunk effect. The crown is oval and extremely dense; so dense, in fact, that cats find it almost impossible to penetrate the masses of ascending branches. It becomes, therefore, a true haven for many of the smaller, tree-nesting birds, and affords them ample protection. One specimen that is twelve years old is approximately fifteen feet tall.

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## ARBORETUM NOTES

As we have indicated several times during the past months, the major work that confronts us at the moment is the planting of relatively large numbers of trees and shrubs. Azalea Way is occupying our attention now and, with favorable weather, the planting of this outstanding tract should be completed for this season in another five weeks. We have estimated that by the end of the first week in February approximately 300 flowering cherries, 200 eastern dogwoods, and 1400 azaleas will have been placed in their permanent positions. Of course this will not complete the seven-acre area, but it will most certainly give us an excellent start to which we can make yearly additions until Azalea Way is finished.

Through the generosity of the Seattle Garden Club we have received all of the flowering dogwoods and 175 of the Japanese

cherries, with two additional shipments of cherries expected by January 15. The majority of the 1,400 azaleas which will be planted are of good size and should produce rather decent displays of color this spring.

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The Kenmore Garden Club has recently presented five excellent specimens of *Chionanthus retusa* to the Arboretum. The plants arrived during the last week of December and will be given a place in the area that has been set aside for members of the ash family. This is a very desirable contribution and we most certainly appreciate it. The same club has decided to sponsor a collection of sumacs, which, although lacking the brilliance of flower that characterizes other groups, have many attributes which make them very desirable from an ornamental standpoint. Fall coloration is one of the particular assets of the sumacs.

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Under the sponsorship of the Washington State Conservation Society a lighted Christmas display was exhibited for a ten-day period during the holiday season. Following a plan which was prepared by Mr. Noble Hoggson, landscape architect, and with the lighting arrangements in charge of Mr. Lyman D. Morgan, illumination expert, a beautiful display was arranged. An estimated 40,000 people stopped to view the exhibit, which was placed immediately behind the Maple Pool, where brilliant reflection effects were to be had.

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## HEATHS AND HEATHERS

By ARTHUR P. DOME

(Continued from January Issue)

ERICA carnea can be planted under deciduous trees when the lowest branches are about 15 feet up. But in the autumn you must be careful to keep the fallen leaves raked off them if you want a good showing of bloom.

In selecting plants for your garden it is, of course, necessary to take into consideration the amount of space you have for them and the amount of money you wish to spend. If your garden is large you can use some of the tree heaths and have a greater variety. If it is small, choose the smaller growing and rarer varieties. But don't forget that a lot of the old stand-bys are still beautiful and much less expensive.

Everyone seems interested in a list of heathers and heaths that will give a continuance of bloom the year around. The following is, in my opinion, the best grouping to be obtained here in the Northwest. We will start with winter blooming varieties, for that is what most people seem to be interested in.

The best is *Erica carnea*, and its varieties, because it can be used in so many places. It will even tolerate some lime if that is necessary. It has bright green foliage which turns a deeper color in the winter. The flowers are rosy red and bloom from

December to April. It grows about six inches high and covers a space of about three feet. Springwood White is one of the best varieties. The flowers are quite large and appear in late winter on plants not more than three inches tall. It is fast becoming popular for its ability to cover ground. *E. carnea* King George is also a popular early winter bloomer. English catalogues list it as being dark red, but all I have seen here seem to have pale purple flowers. It is a slow grower, reaching a height of six inches, and is really a beautiful heath. Ruby Glow has bright carmine flowers with rather dark brown foliage. It is a choice variety and is fast becoming popular. It blooms in late winter and is very effective in mass planting. The variety Vivelli is another most unusual heath. It has dark ebony colored foliage which turns dull red in winter. Its carmine flowers, appearing in late winter, seem to want to hide themselves under the stems. *Erica mediterranea* Brightness is a fairly new heath to us here, and is the only variety of *mediterranea* worth growing. Its bright red flowers in contrast to its dark foliage make it very colorful. It grows about two feet tall and blooms in late winter. There is one other, *Erica mediterranea* Darleyensis, sometimes called the E. M. Hybrid, which fills an important gap in the rotation of bloom. It blooms from early November to late April. Its foliage is much like the species (*E. mediterranea*) but its flowers are similar to *E. carnea*, only a few shades paler. It grows to a height of two feet.

Now we come to the spring bloomers. *Erica cinerea* comes into flower late in the spring. It has varieties far more beautiful than the common reddish-purple type. The flowers are subglobose in shape and vary in size with the variety. The plant will grow to one and a half feet and will bloom from April to September. The variety alba bears its flowers in such profusion that it looks like a large patch of snow when seen from a distance. It grows about one foot high and I have had racemes of flowers more than six inches long. One of the darkest flowering heaths is the *E. carnea* atro-rubens with its dark velvety-red flowers, shining like satin when the dew is on them. This variety is quite new to the Northwest and is truly beautiful. Domino is a white variety that is quite different. It has a white corolla, but the sepals, pedicels and leaves are ebony colored, giving to it an outstanding distinctiveness. It grows about nine inches high and covers a great deal of ground, and is one of my favorites.

When summer comes the heaths and heathers luxuriate. It may be the hot sun that they like, but, whatever it is, they certainly bloom in profusion. Perhaps the best blooming summer heath is *Erica vagans* and its varieties. The type blooms in late summer and bears its reddish purple flowers on spikes that are from three to four inches long, but it *must* have an annual trimming every spring, otherwise the plants grow sprawly and ungainly. Lyonesse is the best white variety of *E. vagans* that is grown. The flowers are pure white and the protruding anthers a beautiful golden yellow instead of the usual reddish brown. It grows to a height of one and a half feet and is a profuse bloomer. But the *vagans* variety that is most strikingly beautiful is Mrs. D. F. Maxwell. The flowers are a deep cerise and the plants are certainly not stingy with their bloom. A mass planting of Maxwells in bloom is a breath-taking sight. If your garden is small, do have at least one plant. It will grow quite

rapidly and will give that aristocratic feeling that a beautiful plant in your garden always does. Then near it plant an *E. vagans* St. Keverne. It is the only *Erica* to have pink flowers without a trace of purple. The flowers grow in fat spikes on erect stems. The black anthers which protrude through the corolla make a beautiful contrasting effect. But it is the soft pink color which makes it so unusual.

Another good summer bloomer is *Erica tetralix*. This plant bears its subglobose flowers on umbels at the ends of its much branched stems. The only good variety of this species that we have here is *alba mollis*. Its flowers are a beautiful waxy white, but even when it is not in bloom the silvery gray foliage of the plant makes it popular. It grows about nine inches tall.

You may have noticed that in winter and spring the *Ericas* or heaths hold the center of the stage, but when summer comes they are hard put to hold that position, for *Calluna vulgaris* and its varieties offer plenty of competition. As a species *Calluna vulgaris* has nothing much to commend it in the way of beauty and should really be found only in the collector's garden. But its new varieties are the plants that have revolutionized heather gardens. Consider C. v. J. H. Hamilton, out from England two years ago, but on the market here for the first time last spring. It is beautiful, delicately beautiful, with flowers like tiny double roses, perfect in form, and of a soft true pink. It is the only *Calluna* that is pink without a trace of purple. My plants were small this year, but I had spikes of flowers six inches long. The plant grows to nine inches and will bloom through August and September. Then there is the C. v. County Wicklow. It is very similar in habit to Hamilton, except that the foliage is much daintier and the flowers are a pale lavender with the same beautiful miniature rose form appearing on erect stems. Some people think the Wicklow is as beautiful as the Hamilton. That, however, is a matter of taste. Both will some day become popular corsage flowers.

Then, of course, there is the variety H. E. Beale. I think anyone who saw my rows of this splendid sort in bloom last summer will not quickly forget the sight. The flowers are the same rose type as the Wicklow but instead of a single flower spike the plant is much branched and the flowers are a deeper lavender, softer in color and very dainty. The flower spikes on my plants measured from twelve to twenty inches long and when used as table decorations were truly beautiful. This plant is absolutely one of the *musts* if you plan a heather garden.

Another *Calluna* that is being much disputed is the C. v. aurea or "Golden Heather". To my mind the reason that most gardeners do not like it is because they do not grow it properly. Of all the heaths or heathers it needs the most attention. To keep it golden it must be kept growing, for only the new growth is yellow. This means that *spring trimming is absolutely essential* and an occasional nip here and there, judiciously done any time of the year, is all to the good. It must also have full sunshine for the yellow of summer and the red of winter, although the colder the winter the redder the aurea. Don't be afraid of it. It will repay you for its extra care.

THE ARBORETUM BULLETIN

*Published by the*

Arboretum Foundation, 4420 White Building  
SEATTLE

Sec. 562 P. L. & R.